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1. Astract of 39th interscience conference or antimicrobial agents and chemotherapy; Vol. 39, 1999, page 319 XP00112119. SAn Francisco, California, USA, Sep. 26-29, 1999. CM1, 8E12.

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8/11/03

for 7 days. AZT was used as control at a concentration of 1 µg/ml. Cell viability was estimated by trypan blue exclusion. Culture fluids harvested were assayed for HIV-1 p24 antigen by ELISA. **Results:** Oleanolic acid showed a potent suppressive effect on HIV replication at concentrations of 10 and 20 nM with inhibition of 85% and 97%, respectively. The degree of inhibition of AZT on HIV was 70%. At the concentrations used oleanolic acid had no toxic effect on uninfected PBMC (cell viability>90%). **Conclusions:** A significant anti-HIV activity of oleanolic acid on infected human PBMC was demonstrated. Moreover, the compound has no cytotoxic effect. Results are in agreement with recent studies that showed antiretroviral inhibitory effect of this triterpenoid on H9 T-cell line.

934.
Gallium Nitrate: a Potent Inhibitor of HIV-1 Infection In Vitro.

J.T. STAPLETON, D. KLINZMAN, O. OLAKANMI, S. WUENSCHMANN, L.S. SCHLESINGER, B.E. BRITIGAN, Univ. of Iowa and Iowa City VA Med. Ctr., Iowa City, IA.

Background: Gallium nitrate (Ga) is a potent ribonucleotide reductase inhibitor which was previously shown to inhibit avian retroviruses. Although the mechanism of it's anti-retroviral activity was not elucidated, it is known that Ga inhibits cellular activation in a manner analogous to hydroxyurea (HU). Since Ga is administered to humans intravenously, and oral preparations are being developed, we evaluated Ga for it's anti-HIV activity, and compared it with HU. **Methods:** Various concentrations of Ga or HU were added to 1 x 106 PHA/IL2 stimulated PBMC's 24 hours prior to infecton with HIV-1 stock virus. 16 hrs. following infection, cells were washed and culture supernatants were obtained 4 and 7 days post-infection. HIV p24 antigen production in culture supernatants was determined by ELISA. To determine if RT inhibitors were potentiated by Ga, zidovudine(zdv), ddI and ddC were also evaluated with and without Ga. **Results:** Ga reproducibly inhibited HIV replication at concentrations which did not inhibit cellular proliferation or viability. Ga IC50 ranged from 4 to 10 uM, which was approximately 15-fold lower than HU (120 uM) in our culture system. Using sub-inhibitory concentrations of zdv, ddI and ddC, Ga potentiated the inhibitory effects of these nucleoside analogs. The addition of transferrin to the cell culture did not appear to have a significant effect on the antiviral activity of Ga. **Conclusions:** Ga was considerably more potent than HU in inhibiting HIV-1 replication in stimulated PBMC culture. This effect potentiated the effect of anti-HIV nucleoside RT inhibitors. Ga inhibits the same cellular target as HU although it does so by a different mechanism of action. Since the inhibitory concentration of Ga is achievable in humans, and the relative potency of Ga is greater than HU, additional studies of Ga appear warranted.

935.
Anti-HIV Activity of Cathelicidins: Oxygen-Independent Antimicrobial Peptides Found in the Secondary Granules of Phagocytes.

J.T. STAPLETON[1], D. KLINZMAN[1], S. WUENSCHMANN[1], P. MCCRAY[2], B. TACK[2], [1]Univ. of Iowa and Iowa City VA Med. Ctr., Iowa City, IA; [2]Univ. of Iowa, Iowa City, IA.

Background: Cathelicidins are naturally occurring cationic peptides that interact with lipid membranes, and have broad spectrum and potent antibacterial activity against many gram negative and gram positive bacteria. We evaluated cathelicidins for their ability to inhibit HIV replication. **Methods:** A T-tropic HIV-1 virus stock was mixed with various concentrations of synthetic peptides representing the sequence of cathelicidins of Rabbit (Rab), Mouse (mCRAMP), Rat (rCRAMP), Sheep (SMAP) and Human (FALL) origin. The mixture was applied to a CD4+ T lymphoblast cell line (MT-2) or to PHA/IL-2 stimulated human PBMC's. Viral replication was measured by syncytia formation (CPE) and by measuring p24 antigen released into culture supernatants. Vaccinia virus served as a control virus infection. **Results:** SMAP34 and mCRAMP inhibited HIV induced cell fusion and p24 antigen production in both MT-2 cells and PBMC's at concentrations of < 10 ug/ml. FALL 39 inhibited at 20 ug/ml, whereas truncated FALL molecules (FF21) and LL37 did not. A different SMAP (29) did not have anti-HIV activity, and rCRAMP appeared to have minimal inhibitory activity at concentrations of 100 ug/ml. At this concentration, cellular toxicity was noted in some experiments. rCRAMP differs from mCRAMP primarily at the carboxy terminus. Rab (37 amino acids) and 10 truncated Rab peptides did not inhibit HIV infection. mCRAMP and SMAP 34 did not inhibit vaccinia virus infection or antigen expression in MT-2 cells or human fibroblasts. If cathelicidins were added after HIV was allowed to attach, the antiviral effect was lost. **Conclusions:** Naturally occurring antimicrobial peptides inhibited HIV-1 infection in MT-2 cells and PBMC's at concentrations that were not cytotoxic. The activity apparently involved cathelicidin interaction with the viral envelope with subsequent inhibition of attachment or viral entry. Activity may involve the carboxy terminus of the peptide based on the mCRAMP and rCRAMP differences. Further studies to determine the inhibitory mechanism of cathelicidin - HIV interactions are underway.

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1: J Clin Microbiol. 1993 Dec;31(12):3165-9. Related Articles, Links

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Parallel comparison of accuracy of API 20E, Vitek GNI, MicroScan Walk/Away Rapid ID, and Becton Dickinson Cobas Micro ID-E/NF for identification of members of the family Enterobacteriaceae and common gram-negative, non-glucose-fermenting bacilli.

O'Hara CM, Tenover FC, Miller JM.

Nosocomial Pathogens Laboratory Branch, Centers for Disease Control and Prevention (C16), Atlanta, Georgia 30333.

We compared the API 20E (21 h) (API; bioMerieux Vitek, Hazelwood, Mo.), the Vitek GNI card (4 to 18 h) (Vitek; bioMerieux Vitek), the identification portion of the MicroScan Walk/Away Rapid Neg Combo 3 panel (2 h) (W/A; Baxter Diagnostics, Inc., West Sacramento, Calif.), and the Becton Dickinson Cobas Micro ID-E/NF rotor (21 h) (Cobas; Becton Dickinson Diagnostic Instrument Systems, Sparks, Md.), versus conventional biochemicals for their abilities to identify accurately 252 strains of biochemically typical and atypical members of the family Enterobacteriaceae and common non-glucose-fermenting gram-negative bacilli. All strains used were included in the data base of each product. At the end of the initial incubation, 194 (77.0%), 213 (84.5%), 198 (78.6%), and 192 (76.2%) strains were correct to the genus and species levels with the API, Vitek, W/A, and Cobas systems, respectively. After additional biochemical tests were performed, as directed by each manufacturer's protocol, the numbers of strains correctly identified to the genus and species levels were 241 (95.6%), 234 (92.8%), 243 (96.4%), and 230 (91.3%) with the four systems, respectively. The errors were random in all systems, with the exception of two atypical Salmonella enteritidis strains, each of which was misidentified by three systems. After the initial recommended incubation period, both API and Cobas were significantly less accurate than Vitek (Yates' corrected $P < 0.05$). No significant differences were noted between the results of Vitek and W/A or between the results of API and W/A. After additional tests were completed, Cobas was significantly less accurate than W/A ($P < 0.05$) but was equal in accuracy to Vitek and API.(ABSTRACT TRUNCATED AT 250 WORDS)

PMID: 8308108 [PubMed - indexed for MEDLINE]

1: J Clin Microbiol. 1993 May;31(5):1322-5. Related Articles, Links

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Evaluation of the Vitek Systems Gram-Positive Identification card for species identification of coagulase-negative staphylococci.

Bannerman TL, Kleeman KT, Kloos WE.

Department of Microbiology, North Carolina State University, Raleigh 27695-7614.

Vitek Systems' Gram-Positive Identification test (GPI) card was evaluated for the ability to identify 12 coagulase-negative Staphylococcus species and subspecies. The bionumber generated from the GPI card was examined for its potential use in epidemiological studies. Results indicated that the GPI card had a high degree of correlation with the conventional methods of identification. The species identified with the greatest accuracy were Staphylococcus epidermidis (92%), S. haemolyticus (95%), S. capitis subsp. capitis (88%), and S. saprophyticus (100%). S. hominis (63%) was identified with the least accuracy. The bionumber was found to have limited epidemiological value because of the frequent occurrence of a few major bionumbers.

PMID: 8501236 [PubMed - indexed for MEDLINE]

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1: J Clin Microbiol. 1994 Feb;32(2):433-6. Related Articles, Links

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Evaluation of differential inoculum disk diffusion method and Vitek GPS-SA card for detection of oxacillin-resistant staphylococci.

Knapp CC, Ludwig MD, Washington JA.

Department of Clinical Pathology, Cleveland Clinic Foundation, Ohio 44195.

This study was conducted in order to compare the accuracy of detection of oxacillin-resistant staphylococci, defined by microdilution MICs, population analyses, and mec gene hybridization, with the Vitek GPS-SA Susceptibility Card with that of the standard inoculum (10(7) CFU) and high-inoculum (10(9) CFU) disk diffusion tests. By the standard inoculum disk diffusion test, 10 of 67 (15%) isolates of oxacillin-resistant Staphylococcus aureus and 3 of 47 (6%) isolates of Staphylococcus epidermidis were falsely susceptible after 24 h of incubation at 35 degrees C. By the high-inoculum disk diffusion test (10(9) CFU), 4 of the 10 isolates of S. aureus remained falsely susceptible, whereas none of the isolates of S. epidermidis was falsely susceptible. Of the 10 isolates of S. aureus falsely susceptible by the standard disk test, only one remained falsely susceptible after an additional 24 h of incubation at 22 degrees C. All four isolates of S. aureus that were falsely susceptible by the high-inoculum disk diffusion test after 24 h of incubation at 35 degrees C became resistant after an additional 24 h of incubation at 22 degrees C. Thus, extended incubation of both the standard and high-inoculum disk diffusion tests increased their accuracy in detecting oxacillin resistance. All isolates of oxacillin-resistant staphylococci were accurately detected with the Vitek software upgrades (6.1 and 7.1) of the GPS-SA card.

PMID: 8150954 [PubMed - indexed for MEDLINE]

1: Eur J Clin Microbiol Infect Dis. 1992 Nov;11(11):979-84. Related Articles, Links

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Comparison of the autoSCAN-W/A and Vitek Automicrobic systems for identification and susceptibility testing of bacteria.

Visser MR, Bogaards L, Rozenberg-Arska M, Verhoef J.

Department of Clinical Microbiology, University Hospital Utrecht, The Netherlands.

The identification and susceptibility testing of bacteria by the autoSCAN-W/A rapid panels and Vitek Automicrobic systems were compared. A total of 291 clinical isolates, including 207 members of the Enterobacteriaceae, 41 nonfermentative gram-negative bacilli, 31 Staphylococcus aureus strains and 12 Enterococcus faecalis strains, were tested. autoSCAN-W/A and Vitek correctly identified 93% and 94% respectively of the Enterobacteriaceae, the identification in an additional 2% and 5% of strains respectively being reported as correct with a low probability. autoSCAN-W/A reported all identification results within 2 h after inoculation, whereas Vitek reported the identification results for the majority of gram-negative bacilli between 4 h and 6 h after inoculation. autoSCAN-W/A and Vitek reported 81% and 74% of MIC results respectively after 3-6 h incubation. The rates of very major susceptibility errors were 0.4% and 0.4% for autoSCAN-W/A and Vitek respectively, the rates of major errors 0.4% and 1% respectively, and the rates of minor errors 4% and 3% respectively. Six of 30 Pseudomonas aeruginosa strains failed to grow sufficiently for susceptibility testing in the autoSCAN-W/A system, and four Xanthomonas maltophilia strains had insufficient growth for susceptibility testing in both systems. The majority of results of susceptibility testing of nonfermentative gram-negative bacilli were reported more than 6 h after inoculation. Both systems were reliable and easy to operate, and gave accurate results for common clinical isolates.

PMID: 1295766 [PubMed - indexed for MEDLINE]

1: J Clin Microbiol. 1991 Jul;29(7):1422-8. Related Articles, Links

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Comparison of the autoSCAN-W/A rapid bacterial identification system and the Vitek AutoMicrobic system for identification of gram-negative bacilli.

Pfaller MA, Sahm D, O'Hara C, Ciaglia C, Yu M, Yamane N, Scharnweber G, Rhoden D.

Iowa City Veteran's Affairs Medical Center, Iowa.

The autoSCAN-W/A (W/A; Baxter MicroScan, West Sacramento, Calif.) with the new fluorometric Rapid Neg Combo 1 (RNC) panel is a fully automated fluorometric system for identification of both enteric and nonenteric gram-negative bacilli within 2 h. We compared the W/A with the Vitek AutoMicrobic System (Vitek AMS; Vitek Systems, Inc., Hazelwood, Mo.) for identification of 383 clinical isolates of gram-negative bacilli. The API 20E (Analytab Products, Plainview, N.Y.) and conventional biochemical testing were used as the reference systems. The W/A correctly identified 336 isolates (87.7%) to the species level and classified an additional 29 isolates (7.6%) as correct with low probability (overall identification = 95.3%); the Vitek AMS correctly identified 355 isolates (92.7%) to the species level and classified an additional 8 isolates (2.1%) as correct with low probability (overall identification = 94.8%). A common set of 134 isolates of gram-negative bacilli was tested in both participating laboratories as a means of assessing interlaboratory agreement with both the W/A and the Vitek AMS. The overall agreements between the two laboratories were 86% with the W/A and 92% with the Vitek AMS. The W/A performed comparably to the Vitek AMS for identification of most gram-negative bacilli, actually exceeding the Vitek AMS for identification of nonenteric bacilli. Rapid time to identification and a high level of automation make the W/A an attractive system for clinical microbiology laboratories.

PMID: 1885737 [PubMed - indexed for MEDLINE]

1: Vet Microbiol. 1991 Feb 1;26(3):301-8. Related Articles, Links

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Comparative evaluation of Vitek gram-positive identification system and API Rapid Strep system for identification of Streptococcus species of bovine origin.

Jayarao BM, Oliver SP, Matthews KR, King SH.

Department of Animal Science, University of Tennessee, Knoxville 37901-1071.

The Vitek Gram-positive identification system (GPI, Vitek Systems, Inc., Hazelwood, MO) and the API Rapid Strep system (Analytab Products, Plainview, NY) were evaluated for species identification of streptococci isolated from bovine mammary glands and compared to conventional biochemical methods. A total of 144 strains including Streptococcus uberis (60), S. dysgalactiae (32), S. agalactiae (15), S. bovis (15), Enterococcus faecium (10) and Ent. faecalis (12) were evaluated. All reference strains were identified correctly by both systems. Vitek GPI card system identified 94.4% of strains, including 95% of S. uberis, 93.8% of S. dygalactiae, 93.3% of S. agalactiae and S. bovis II, 90% of Ent. faecium and 100% of Ent. faecalis. Majority of strains were identified with a 90-99% level of confidence, with an average of 8 h needed for identification. The API Rapid Strep system identified 96.5% of strains correctly, including 95% of S. 96.9% of S. dysgalactiae, 93.3% of S. agalactiae, and 100% of S. bovis II, Ent. faecium, and Ent. faecalis. Majority of strains were identified with excellent level of identification. With the exception of S. uberis, most strains were identified at 4 h of incubation.

PMID: 2024448 [PubMed - indexed for MEDLINE]

1: J Clin Microbiol. 1986 Jan;23(1):1-5. Related Articles, Links

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Comparison of the Quantum II Bacterial Identification System and the AutoMicrobic System for the identification of gram-negative bacilli.

Pfaller MA, Bale MJ, Schulte KR, Koontz FP.

The Quantum II Bacterial Identification System (BID; Abbott Laboratories) is a microprocessor-based spectrophotometric system for identification within 4 to 5 h of both enteric and nonenteric gram-negative bacilli. We compared the BID with the AutoMicrobic System (AMS; Vitek Systems, Inc.), using the most recent gram-negative identification card and software (AMS-GNI), for the identification of 501 clinical isolates of gram-negative bacilli, including 382 belonging to the Enterobacteriaceae and 119 nonenteric organisms. The API 20E (Analytab Products) was used as the reference system. The BID correctly identified 375 (98.2%) of the Enterobacteriaceae isolates and 111 (93.2%) of the nonenteric isolates; the AMS-GNI correctly identified 374 (97.9%) and 115 (96.6%) isolates, respectively. The BID identified all isolates within 5 h, whereas the AMS-GNI identified only 35% within this time period. The BID performed comparably to the AMS-GNI for the identification of most gram-negative bacilli. Simplicity, speed, and relatively low reagent cost make the BID a competitive system for many clinical laboratories.

PMID: 3517034 [PubMed - indexed for MEDLINE]

1: J Clin Microbiol. 1987 Jan;25(1):42-4. Related Articles, Links

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Premarket evaluation of IDS RapID SS/u system for identification of urine isolates.

Halstead DC, Hoffert MR, Colasante GG.

A total of 170 fresh clinical urine isolates were tested with a premarket configuration of the RapID SS/u system (Innovative Diagnostic Systems, Inc., Atlanta, Ga.), a qualitative micromethod for the identification of selected organisms commonly isolated from urine specimens. Results were compared with those obtained with conventional methods of identifying gram-positive isolates and with the AutoMicrobic system (Vitek Systems, Inc., Hazelwood, Mo.), utilizing Gram-Negative Identification cards for the identification of gram-negative rods. Organisms representing 12 taxa were included in the study. Of the 170 isolates, 163 (95.9%) were correctly identified. A total of 144 strains (84.7%) were correctly identified without additional testing, whereas 19 isolates (11.2%) required further testing. Seven isolates (4.1%) were incorrectly identified. The SS/u system required minimal hands-on time inoculate and interpret reactions. Discrepancies most often occurred with regard to misinterpretation of Escherichia coli and Enterobacter sp. as Citrobacter sp. The IDS RapID SS/u system may indeed prove valuable for the rapid manual identification of urine isolates.

PMID: 3539997 [PubMed - indexed for MEDLINE]

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1: J Clin Microbiol. 1988 Feb;26(2):225-30. Related Articles, Links

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Clinical evaluation of the Vitek ANI card for identification of anaerobic bacteria.

Schreckenberger PC, Celig DM, Janda WM.

Clinical Microbiology Laboratories, University of Illinois Hospital, Chicago.

An evaluation of the Vitek Anaerobe Identification (ANI) card was performed with 341 bacterial isolates, including 313 clinical isolates and 28 stock strains of anaerobic microorganisms. Identifications obtained with the ANI card were compared with those determined by conventional methods. The card identified 73.2% of 149 anaerobic gram-negative bacilli, 63.6% of 44 Clostridium spp., 65.8% of 38 anaerobic nonsporeforming gram-positive bacilli, and 69.1% of 110 anaerobic cocci, with no further testing required. When genus-level identifications were included, 83.9% of the anaerobic gram-negative bacilli, 70.5% of Clostridium spp., 73.7% of the anaerobic nonsporeforming gram-positive bacilli, and 73.6% of the anaerobic cocci were identified. Nineteen isolates (5.6%) produced identifications of good confidence but marginal separation or questionable biotype, in which the correct identification was listed with one or two other possible choices and extra tests were required and suggested. A total of 28 (8.2%) were not identified and 29 isolates (8.5%) were misidentified by the ANI card. Among the commonly isolated clinically significant anaerobes, the ANI card identified 100% of 55 Bacteroides fragilis and 100% of 8 Clostridium perfringens. Use of supplemental tests and expansion of the data base to include additional strains of organisms that are difficult to separate even with conventional methods may improve the accuracy of the ANI card as a method for identification of anaerobic bacteria in the clinical laboratory.

PMID: 3343321 [PubMed - indexed for MEDLINE]

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